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CONTENTS

Plants of the Southbury Triassic Area. <i>E. B. Harger</i> . . .	65
American Relatives of <i>Polygonum maritimum</i> . <i>M. L. Fernald</i> . . .	68
A teratological Specimen of <i>Cypripedium acaule</i> . <i>J. B. May</i> . . .	73
Some Noteworthy Varieties of <i>Bidens</i> . <i>M. L. Fernald</i> . . .	74
<i>Phlox divaricata</i> in Vermont. <i>J. G. Underwood</i> . . .	79
Winter Meeting of the Vermont Botanical Club. <i>N. F. Flynn</i> . . .	79
Summer Meeting of the Vermont Botanical and Bird Clubs . . .	79

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SOME PLANTS OF THE SOUTHBURY TRIASSIC AREA.

E. B. HARGER.

THE small area of Triassic sandstone with its accompanying trap ridges, which lies in the towns of Southbury and Woodbury, Connecticut, has long been of interest to geologists, and full descriptions of it from a geological point of view may be found in publications of the U. S. Geological Survey.

During the past few years the writer has had occasional opportunities for botanizing in parts of this area, and has found it unusually rich in species rare in the state and in New England.

The area underlaid by Triassic rocks is roughly oval in outline and is some six miles in length (north and south) by about three miles in width. It is generally below the level of the surrounding country and is divided into an eastern and a western valley by a group of trap ridges which run a little east of north through the central part. A small river, the Pomperaug, is formed at the northerly end of the valley by the junction of smaller tributaries and flows at first southwestwardly in the western valley but soon turning passes through a break in the central ridge and flows southerly through the eastern valley, then turning westerly sweeps in a broad curve around the end of the central highland and entering the western valley again flows northward as if bent on returning to its source. After about a mile, however, it turns in an acute angle to the southwest and enters the Housatonic river opposite its circuit of the ridge.

Three villages lie in the area,—Woodbury in the western valley at the north, Southbury in the central and southern part of the eastern valley, and South Britain in the southerly part of the western valley. The towns of Southbury and Woodbury divide the area between them;

with perhaps the greater part in Southbury, which includes South Britain.

My explorations have to a large extent been made from South Britain as a base but have included most of the territory to some degree. A locality of special interest is formed at South Britain by the river shores and alluvial meadows extending southerly from the acute angle of the river some half a mile until the river enters the granitic rocks. Here, close to the caving river bank, I collected, three or four years ago, a *Panicum* which at the time was taken for *P. villosissimum* Nash and some specimens were distributed under that name. Later, Mr. C. H. Bissell reported that his specimen from this collection had been determined by Prof. A. S. Hitchcock as *P. pseudo-pubescens* H. & C., but on sending my specimens to Prof. Hitchcock they were named *P. scoparioides* Ashe. I was somewhat puzzled but visited the locality again and found that both the latter species were growing there together, so that my first collection must have been of mixed material.

On the alluvial meadows here we find an abundance of *Tradescantia virginica* L. growing over a considerable area, perhaps a quarter of a mile in either direction from the *Panicum* station and on both sides of the river. The region was settled very early and this is possibly introduced but it appears to be native and, if so, this is probably the most northeasterly known native station. The river banks and thickets here furnish *Arabis glabra* (L.) Bernh. and an abundance of *Floerkea proserpinacoides* Willd. both of which seem to be rare in the state. In the summer of 1911 as I was passing by a thicket where *Floerkea* made a carpet in the spring, I saw a dodder which appeared to be strange. I was somewhat skeptical at first as our common *Cuscuta Gronovii* Willd. has a way of appearing in strange forms, but this proved to be *Cuscuta obtusiflora* HBK. new to New England and scarcely more than 300 feet from the only known New England station for *Panicum pseudo-pubescens*: while the single New England station for *Phlox pilosa* L. (see RHODORA 1: 76) is about a mile distant. As far as yet known these meadows yield no more species unique in New England or even in Connecticut, but several rare or interesting forms occur, among them *Carex trichocarpa* Muhl. which has been known from Connecticut only a few years but here as elsewhere grows in masses in the swales, then *Viola scabriuscula* Schwein. and *Claytonia virginica* L. are abundant in their season, while *Antennaria canadensis* Greene and *Monarda fistulosa* L. occur sparingly.

Turning now to the trap ridges which overlook the village of South Britain from the east we find a little pool near the summit bordered by a growth of *Populus heterophylla* L. not known elsewhere within 25 miles; while on the drier rocky slopes *Cypripedium parviflorum* Salisb., *Aristolochia Serpentaria* L., *Parietaria pennsylvanica* Muhl. and *Ranunculus fascicularis* Muhl. grow sparingly. A small amount of *Pellaea atropurpurea* Link. grows here in crevices of sandstone and is also found in Woodbury on trap.

On the second ridge eastward Mr. A. E. Blewitt discovered the showy *Cynthia*, *Krigia amplexicaulis* Nutt., growing on a rather dry stony roadside remote from dwellings or cultivation.

At the southern end of one of these ridges overlooking the river is the type locality of *Arabis viridis* Harger (RHODORA 13: 37). This also occurs sparingly near the station for *Populus heterophylla* L. and was collected by Dr. E. H. Eames in Orenaug Park, Woodbury on a trap ridge at the northerly end of the area.

Returning again to the lowland, as we go from South Britain toward Southbury we find the roadside bordered with *Dipsacus sylvestris* L. while a meadow near is yellow with *Galium verum* L. and nearly opposite is found *Physalis virginiana* Mill. Along the parallel road south of the river *Agrimonia parviflora* Ait. and *Linum sulcatum* Riddle, have been found, the latter occasional through the eastern valley into Woodbury. Just at the southern limit of the Triassic is located the station for *Phlox pilosa* L. already mentioned and with it or near by grow *Anemone cylindrica* Gray and *Convolvulus spithameus* L. while another dodder, *Cuscuta arvensis* Beyrich, was collected in a field near by.

Passing now into the eastern valley we find staminate *Salix alba* L. var. *vitellina* Koch. along a tributary of the Pomperaug and formerly there was a quantity of *Monarda didyma* L. in a fence-row along the road. A little farther north *Cuphea petiolata* Jacq., *Verbena angustifolia* Michx. and *Aster amethystinus* Nutt. grow in dry soil on one farm and near the northern limit of Southbury one of the "king devil" weeds, *Hieracium pratense* Tausch. (probably), is gaining a good foothold in a dry field. On a roadside near by the writer discovered *Senecio Balsamitae* Muhl. var. *praelongus* Greenm., the first record for this part of the state. This was later collected in Woodbury by Eames and Godfrey.

Passing now into the town of Woodbury we find a small sphagnum

bog at the southerly end of the village which contains a quantity of *Kalmia polifolia* Wang., the most southerly record for the state. Across a sandy ridge from this bog on the banks of the Pomperaug I found in 1884 *Hibiscus Moscheutos* L. The date of this record is of interest as the adjacent country has since been planted with native and exotic showy species and the present-day collector, if he found the rose-mallow there, would be apt to take it for a planted specimen, but in 1884 the place was entirely "unimproved."

Along a road leading westerly from the village of Woodbury and in the adjacent fields are a quantity of *Avena pubescens* Huds. and *Galium Mollugo* L., the former new to the state. Farther to the westward the upper reaches of a pond are covered with *Wolffia columbiana* Karst., here discovered by Eames & Godfrey, and near by along a brook grows *Carex tribuloides* Wahlenb. var. *reducta* Bailey. Other noteworthy species of Woodbury have been mentioned in connection with their occurrence farther south.

OXFORD, CONNECTICUT.

SOME NORTH AMERICAN RELATIVES OF POLYGONUM MARITIMUM.

M. L. FERNALD.

In studying a glaucous large-fruited *Polygonum* which abounds on the sandy beaches of the Magdalen Islands and on some of the sands of western Newfoundland, Cape Breton and Prince Edward Island, it has been necessary to examine in some detail the plants which have passed in America as *Polygonum maritimum*. One of these, *P. Fowleri* Robinson, is sufficiently distinct in aspect as well as in habitat to need little discussion here, although it is worthy of note that this species of damp saline shores from the Straits of Belle Isle to the mouth of the Kennebec seems nowhere to encroach on the areas occupied by either of the other two plants to be discussed; for, while one of them is known only from the sands of western Newfoundland and the islands of the Gulf of St. Lawrence and the other follows the

sands of the Atlantic from northeastern Massachusetts to Georgia, *P. Fowleri* of somewhat heavier and damper soils has not, so far as the writer can determine, been detected in western Newfoundland, on the Magdalen Islands, nor on Prince Edward Island but occurs on the outer or eastern coast of Newfoundland and follows the mainland shores from Labrador and the lower St. Lawrence around the coast of New Brunswick and the coasts of Nova Scotia, to the islands between the lower Kennebec and Casco Bay — perhaps 120 miles by the coast from the northern limit of the third member of the group.

The plant which has long passed as *Polygonum maritimum* on the coast of the Atlantic United States, the whitish plant of sea-sands from Massachusetts southward, is a prostrate annual which by the earlier students of our flora was taken to be a purely American representative of the European *P. maritimum* L. To be sure, Linnaeus had included the American plant with his frutescent Mediterranean species, *P. maritimum*, saying: "*Habitat Monspeli, in Italia, Virginia. h*";¹ but by Pursh it was treated, with a very inaccurate statement of its characters, as an American variety, his *P. marinum*, β . *roseum*, said to be a "small prostrate evergreen [!] plant, with white or rose-coloured flowers."² Nuttall, however, better understood the situation when he treated the plant of our Atlantic sands as a new species, *P. glaucum*, and said: "HAB. On the sandy beach of the sea, around Egg-Harbour, New Jersey; possesses much the aspect of *P. aviculare*, but produces flowers which are conspicuous and elegant, and occurs in situations which pronounce it native; not naturalized as *aviculare*, the seed is also remarkably distinct. A. [*P.*] *maritimum* of Europe has never yet been found on the American sea-coast."³ And Torrey also evinced a close knowledge of the plant when, taking up Nuttall's *P. glaucum* in 1824, he said: "It can hardly be *P. maritimum* of Linnaeus, a native of the shores of the Mediterranean, for that species is frutescent and evergreen, while our plant appears to be decidedly annual."⁴

Nevertheless, in spite of Linnaeus's statement that his Mediterranean *Polygonum maritimum* was frutescent and the emphasis laid upon this character by Torrey, Nuttall's annual *P. glaucum* was soon

¹ L. Sp. Pl. 361 (1753).

² Pursh, Fl. Am. Sept. i. 269 (1814).

³ Nutt. Gen. i. 255 (1818).

⁴ Torr. Fl. N. & M. U. S. i. 401 (1824).

re-merged with *P. maritimum* and has been so denominated by practically every subsequent student of the group, although the duration of the plant has caused considerable embarrassment. Thus Torrey himself, in 1843, placing *P. glaucum* again in *P. maritimum*, said: "Annual (in the Southern States apparently perennial, and even suffrutescent as in the plant of the Mediterranean shores)"; but in a succeeding paragraph he further qualified his statement by adding: "It is not improbable that the southern plant may be only an annual; for I have not seen the root, and ours is hard and woody at the base, particularly late in the season."¹ The first edition of Gray's Manual indicated it as annual, doubtfully perennial; the second, third and fourth editions called it annual but further confused its identity by reducing it to the very different *P. aviculare*, var. *littorale* Link and adding as synonyms the equally different *P. maritimum* Ray (*P. Raii* Bab.) and the even more distinct *P. Roberti* Loisel. In the fifth edition of the Manual *P. glaucum* somewhat cleared itself of these entangling alliances but still passed as *P. maritimum* and was said to have "a hard and somewhat woody and perennial root...at the north apparently only annual"; in the sixth edition, as *P. maritimum*, it is called "*Perennial*, at length woody at base (or sometimes annual)"; and in the seventh edition, as species no. 1, *P. maritimum*, it is indicated with no. 2, *P. Fowleri* (always annual so far as the writer has observed at numerous stations) as an exceptional species of the section *Avicularia*, which is said to consist of "glabrous annuals, except nos. 1 and 2." Wood, also, passed through a similar psychological (not to say imitative) change in regard to the plant, in the second edition of his Class Book (1847) saying it was annual and treating it as *Polygonum aviculare*, β . *glaucum*, a treatment which also occurs in the so-called "Forty-first Edition" of 1856. In the edition of 1861, however, he swung with the general tide, treated the plant as *P. maritimum* and said that it was perennial. Small, also, in his Monograph of the North American Species of *Polygonum*² and in Britton & Brown's Illustrated Flora and the different editions of Britton's Manual has accepted the traditional statement and says of the plant, as *P. maritimum*: "Perennial or sometimes annual."

The conspicuous feature of these characterizations, it will be seen, is that, when treated as *Polygonum maritimum*, the description of

¹ Torr. Fl. N. Y. ii. 153 (1843).

² Small, Mem. Dept. Bot. Columbia Col. i, 100 (1895).

Nuttall's *P. glaucum* has been forced to fit the Linnean definition as a perennial, but usually with apologies for its annual character on our coast. When, however, the plant has stood upon its own merits it has as regularly been described as an annual. In his experience with the plant in the field the writer has never seen any reason to question Torrey's original statement that *P. glaucum* is "decidedly annual," nor do the herbarium specimens available give any evidence that this is not the fact.

When, however, we examine authentic material of *Polygonum maritimum*, the plant of the sands of the Mediterranean, but found locally northward on the Atlantic coast as far as the Channel Islands and possibly England,¹ we find that, although it may sometimes flower as an annual or biennial, it is, as described by Linnaeus, Torrey, and the Mediterranean botanists, ordinarily a suffruticose plant with stout branches 1.5–4 mm. thick at base, and usually closely invested with very conspicuous overlapping white hyaline stipules, which are 1–2 cm. long and have numerous (usually 12) nerves, the longest of which are 8–18 mm. long. The annual American *P. glaucum*, on the other hand, has the tough but scarcely ligneous branches only 1–2 mm. thick, the lower internodes commonly exceeding the stipules, which are only 7–10 mm. long, with the longest nerves only 5–8 mm. in length. In their extremes the measurements of these two plants slightly overlap, but when good fruit is examined it is found that the European *P. maritimum* has achenes 4.5–5 mm. long, with faces 2.5–3.5 mm. broad; while the American *P. glaucum* has the achenes distinctly smaller, 3–4 mm. long, with faces 1.6–2.2 mm. broad. In view of this aggregation of characters there seems, then, no good reason for longer confusing the endemic American *P. glaucum* Nutt. with its cousin of southern Europe, *P. maritimum* L.

The other glaucous large-fruited and petaloid-flowered *Polygonum* of the sands, the plant which abounds on the Magdalen Islands and is found on the neighboring sands of Prince Edward Island, Cape Breton and western Newfoundland, has also had an unfortunate experience in maintaining its own identity. This plant, like *P. glaucum*, is an annual, but it has greener usually less revolute leaves, shorter and therefore less conspicuous stipules, only 4–8 mm. long and with the longest nerves 3–5 mm. in length; and its achenes are

¹ "Very rare and perhaps extinct in England.... In the Channel Islands it is much more plentiful." — Syme, Engl. Bot. viii. 70 (1873).

as large as in the European *P. maritimum*, in well developed plants 4.5-5.3 mm. long, with faces 3-3.5 mm. broad. Its handsome white-rimmed flowers, too, are more obviously herbaceous below than in either *P. glaucum* or *P. maritimum*. This plant from the Gulf of St. Lawrence closely matches *P. Raii* Babington, a species of maritime sands from Scandinavia and Great Britain to northeastern France, and there seems no reason for not so calling it.

But unfortunately the name *Polygonum Raii* (often spelled *Rayi*) has recently been set aside by many European botanists and has been replaced by the name *P. Roberti* Loiseleur; and following this European lead American students have begun to use the name *P. Roberti* instead of *P. Raii*.¹ This understanding of the matter arose, apparently, from the fact that Meisner states in DeCandolle's *Prodromus* that material sent to him by Loiseleur was a mixture, but that the name properly belonged to *P. Raii*. Loiseleur's species was described from maritime sands of the Mediterranean, and since *P. Raii*, according to Rouy,² does not occur south of the shores of the English Channel (la Manche), it is hardly probable that *P. Roberti*, collected by Robert on the sands near Toulon, is identical with the northern plant. Furthermore, Rouy maintains³ as *P. Roberti* a very distinct plant of the Mediterranean sands, with achenes only 2-3 mm. long. Under these circumstances it is apparently wiser to reinstate the name *P. Raii* for the northern plant to which it was originally applied.

As already pointed out by Dr. Robinson,⁴ the plant which for some time passed in America as *Polygonum Raii*, the plant of damp brackish or saline shores from southern Labrador to southern Maine, is an endemic American species, *P. Fowleri*. This species, which occurs also upon our northwestern coast (but apparently not from "New Brunswick to Vancouver Island," as stated by Small⁵) and was described by Meisner from Sitka as *P. littorale*, *β. buxifolium*⁶ (as shown by the original material in the DeCandolle herbarium), lacks the glaucous hue of *P. maritimum*, *P. glaucum*, and *P. Raii*, ordinarily having a warm green or purplish tone. It is also quickly distinguished from those three species of the sands by its blunt or round-tipped

¹ See Robinson, RHODORA, iv. 67 (1902); Eames, *ibid.* xi. 93 (1909); Fernald, *ibid.* xiii. 138 (1911).

² Rouy, Fl. Fr. xii. 110, 111 (1910).

³ Rouy, l. c.

⁴ Robinson, RHODORA, l. c.

⁵ Small, Mem. Dept. Bot. Columbia Col. i. 98 (1895).

⁶ Meisner in DC. Prodr. xiv. 98* (1856).

usually flat leaves, by the short faintly nerved stipules, by the smaller very herbaceous calyx with oblong (not oval or obovate) narrowly crimson- or pink-margined lobes, and by its olivaceous (not castaneous or blackish) achene. In fact, *P. Fowleri* in its characters and aspect as well as its habitat is quite unlike the three plants with which it has sometimes been confused and has its affinities much more with the boreal *P. islandicum* Meisner, the range of which it overlaps on the Straits of Belle Isle.

GRAY HERBARIUM.

A TERATOLOGICAL SPECIMEN OF CYPRIPEDIUM ACAULE.

JOHN B. MAY, M. D.

ABNORMALITIES among flower forms are often of great interest to the student of botanical morphology, in that they sometimes furnish a clue or a connecting link to an earlier and now extinct form of the plant. I therefore make these notes of a specimen of *Cypripedium acaule*, found May 26, 1912, growing in the wild garden of Mr. Francis Southwick, at Waban, Mass. The two upper or lateral petals were enlarged, with irregular, wavy edges, part of each petal showing the parallel veining of the typical form, and part presenting the pink coloring, netted veining, and in-curved edges of the third petal or labellum. The relationship between the three petals was shown very plainly, while in the normal blossom the layman usually considers the lateral petals as sepals. The sepals and column were apparently normal.

After photographing and sketching the flower, I rubbed some of its own pollen on the stigma in an attempt at fertilization, with the rather remote possibility of seedlings appearing which would perpetuate the oddity.

Henry Baldwin, in his "Orchids of New England," describes a specimen of *Cypripedium spectabile* found in 1881 near Lake Michi-

gan. "The monstrosity was an almost regular flower growing on the same stem with one of the ordinary form. . . . It had no lip but three regularly formed pure white petals all of the same size and shape. . . . Here, in a genus affording some of the most strikingly irregular flowers in Nature was a flower all but regular." My specimen was not such an interesting or so extreme a case of reversion of form, but it fits in well with the theories of the development of the orchid.

As a sidelight on one of Nature's many methods of preventing the perpetuation of abnormalities, let me describe a specimen of *Arcthusa bulbosa* found in Gloucester in late summer, in 1906. Two faded blossoms were growing from a single root, the only two-flowered specimen I ever found. The scapes were parallel and the same length, and the two flowers faced each other in such a way that the parts were interlaced like the fingers of folded hands and the entrance of insects was effectually prevented. The flowers in fading had stuck together firmly, and the shrivelled ovaries showed plainly that fertilization had not taken place.

WABAN, MASSACHUSETTS.

SOME NOTEWORTHY VARIETIES OF BIDENS.

M. L. FERNALD.

IN 1908, the writer recorded¹ the occurrence of the common European *Bidens tripartita* L. as an apparently native plant of swamps at Percé, Gaspé County, Quebec, and at that time called attention to the characters which differentiate it from the American species, *B. frondosa* and *B. connata*, to which it is related. It was, therefore, gratifying, while exploring in August last with Messrs. Bayard Long and Harold St. John on the Magdalen Islands in the Gulf of St. Lawrence, to find, as we had expected to do, *B. tripartita* abundant there, growing either in shallow water at the margins of brackish ponds or in boggy spots near the sea-strand, and later in August to

¹ Fernald, RHODORA, X. 200 (1908).

find it growing abundantly on the marshes near the Hillsborough River in Prince Edward Island.

Upon studying the specimens collected, however, the somewhat striking fact comes out that, though in all the material from the Magdalens and from Gaspé the awns and margins of the achenes are retrorsely barbed as in the European *Bidens tripartita*, the achenes of all the material (thirty or more sheets representing three different collections) from Prince Edward Island have the margins and awns uniformly upwardly barbellate, so that the achenes suggest those of the local *B. frondosa*, var. *anomala* Porter,¹ which is known to the writer only from marshes of the lower Schuylkill and Delaware rivers (in Pennsylvania, New Jersey and Delaware), from the mouth of the Androscoggin in Maine, and from the regions of Halifax, Nova Scotia and of St. Ann's, Cape Breton. This fact, in conjunction with the incident that the three collections of *B. tripartita* gathered without field-study in Prince Edward Island should all show a parallel peculiarity, indicates that this class of varieties is worthy more attention than some students have been inclined to give them.

On account of its upwardly barbed awns, the plant of the Philadelphia region, *Bidens frondosa*, var. *anomala*, was supposed by Asa Gray² to be a hybrid of *B. frondosa* and *B.* (or *Corcopsis*) *bidentoides*, a species known only from the region of Philadelphia. But as already pointed out by Wiegand "it does not show the necessary intermediate condition of other characters, and can scarcely be considered as such [a hybrid]."³ And in a recent letter to the writer Mr. Bayard Long remarks: "All the localities, you see, are along the lower Schuylkill and Delaware waters. . . . There can be no doubt that *anomala* represents, at least in our area, a tide-water form. All the localities definitely point to this. . . . Typical *frondosa* seems very often to grow *with anomala*. . . . But despite this, I imagine you are quite right in believing *anomala* to be a real geographic variety. It certainly does *not* have anything to do with *B. bidentoides*, even in the Delaware system."⁴ Furthermore, the occurrence of var. *anomala* in the marshes of northeastern Cape Breton or of the Halifax region, 900 and 750 miles respectively from the locality of *B. bidentoides*, as well as on the lower Androscoggin, all regions which show in their

¹ Porter ex Fernald, RHODORA, v. 91 (1903).

² Gray, Syn. Fl. i. pt. 2, 296 (1878).

³ Wiegand, Bull. Torr. Bot. Cl. xxvi. 407 (1899).

floras a large number of identities¹ with the flora of southern New Jersey and adjacent districts, indicates that it is a positive geographic variety.

It is remarkable that this variation of the awns in *Bidens*, known in America in at least six species (*B. discoidea*,² *B. Eatonii*,³ *B. frondosa*, *B. connata*,⁴ and *B. tripartita*, and in *B. aristosa* to be discussed below), should not have been noted in Europe. A somewhat detailed search through European treatments of *Bidens* has failed, at any rate, to reveal any mention of such a variation in Europe. It seems, therefore, that the Prince Edward Island variation of *B. tripartita* should be treated as an endemic variety of this species, which in its typical form is known in America only from the neighboring coasts of the Gaspé Peninsula and of the Magdalen Islands. The plant may be called

BIDENS TRIPARTITA L., var. **heterodoxa**, n. var., formae typicae habitu statura etc. similis; foliis inferioribus mediisque 3-5-partitis, lobis lanceolatis argute serratis; foliis superioribus subsimplicibus vel simplicibus, eis ramorum simplicibus lanceolatis serratis; achaeniis biaristatis, margine aristisque sursum barbellatis.

Like the typical form in habit, stature, etc.: lower and median leaves 3-5-parted, with lanceolate coarsely serrate lobes; the upper leaves subsimple or simple; those of the branches simple, lanceolate, serrate: achenes 2-awned; their margins and awns upwardly barbellate.—PRINCE EDWARD ISLAND: border of salt marsh, Bunbury, August 28, 1912, *Fernald, Long & St. John*, no. 8206 (TYPE in Gray Herb.), also no. 8207 (form with many undivided leaves); fresh spring-fed marsh, Southport, August 28, 1912, no. 8205.

¹ On the lower Androscoggin and confluent lower Kennebec waters such excessively localized plants (most of them known from no other area in Maine) as *Lophotocarpus spongiosus*, *Eleocharis rostellata*, *Scirpus Smithii*, var. *setosus*, *Lilaeopsis lineata*, *Samolus floribundus*, and *Limosella aquatica*, var. *tenuifolia*; near Halifax such species as *Woodwardia virginica* (in Maine unknown east of the lower Penobscot), *Schizaea pusilla* (unknown in New England), *Typha angustifolia* (unknown in Maine from east of the lower Kennebec), *Salicornia mucronata* (unknown in Maine from east of York County) and *Ilex glabra* (unknown in New England from east of the Boston district); in Cape Breton such plants as *Schizaea pusilla*, *Lycopodium inundatum*, var. *Bigelovii* and *Iris prismatica* (unknown between York County, Maine and Cape Breton).

² "I have observed downwardly barbed awns in *Coreopsis discoidea*."—Britton, Bull. Torr. Bot. Cl. xx. 280 (1893).

³ *B. Eatonii*, var. *fallax* Fernald, RHODORA, v. 92 (1903).

⁴ "Specimens from Ithaca, N. Y., and Ohio (Selby) as well as one in the National Herbarium collected by Dr. Vasey near Washington have upwardly barbed awns but other characters the same as in the type. At Ithaca these upwardly barbed plants grow over a considerable area almost to the exclusion of the normal form; but many transitional specimens were found in which the awns bore barbs extending in either direction."—Wiegand, Bull. Torr. Bot. Cl. xxvi. 415 (1899). This is *B. connata*, var. *anomala* Farwell, Ann. Rep. Comm. Parks and Boul., Detroit. xi. 91 (1900).

In 1858, J. Q. A. Fritchey sent to Dr. Gray from the neighborhood of St. Louis a plant which in all outward characteristics was *Bidens* (at that time considered a *Coreopsis*) *aristosa* (Michx.) Britton, but differing from typical *Coreopsis aristosa*, which has the awns upwardly barbellate, in having retrorsely barbed awns. Dr. Gray was naturally interested in the anomalous plant and requested more information and material. This was sent by Mr. Fritchey on September 12, 1859, his letter saying: "Today I again examined the flower pronounced by you *Coreopsis aristosa* and which I had called a *Bidens* from the awns being barbed downwards. The awns of all achenia that I examined were barbed downwards, none were even spreading. The flowers which I examined grew in the same location that those grew in which I pressed last year and sent you. . . . In this neighborhood the plant is very abundant along the North Missouri Railroad between this [Bridgeton] and St. Louis, frequently for a mile in length and a rod in width. This plant grows so thick that at a short distance even it appears like solid gold." There are three sheets of the Fritchey material preserved in the Gray Herbarium and upon them Dr. Gray marked "*C. aristosa* in *Bidentem* transformata (*C. aristosa* turned to a *Bidens*)!!" and in a discussion of *Coreopsis*, published in 1862, he said: "*Coreopsis* and *Bidens* are separated by a single, artificial, and not wholly constant character. The group of species on which Nuttall grounded his genus *Diodonta* wholly accords with the *Platycaarpa* section of *Bidens*, except that the awns or teeth are antorsely hispid or naked. Recently we have received, from Mr. Fritchey of Missouri, specimens of *C. aristosa*, Michx., or perhaps of a wild cross between that species and some *Bidens*, with retrorsely hispid awns."¹ And in the Synoptical Flora Dr. Gray treated the plant as a hybrid of *Coreopsis aristosa* "with *Bidens frondosa* or others."

Subsequently, however, a considerable amount of material has accumulated, which shows that this variety of *Bidens aristosa* with retrorsely barbed awns is widely distributed, collections coming in from several different sections of Illinois and Missouri. The immediate stimulus which has led the writer to study the plant was the receipt through Mr. John H. Lovell of material sent to him from Illinois for determination with the statement that it is found "in the swamps of Illinois and along the Mississippi River" and is highly esteemed by bee-keepers on account of its great yield of honey. A close study of the seven collections at hand fails to indicate that the

¹ Gray, Proc. Am. Acad. v. 125, 126 (1862).

plant has any admixture of *B. frondosa*, for except in the barbing of the awns it exactly simulates true *B. aristosa*; but so attractive is the suggestion of hybridity as an explanation of anomalous plants that one of the collections from the Mississippi Valley was labeled by its collector "*Coreopsis bidentoides* Nutt. \times *Bidens frondosa* L.," a remarkable combination to find in Illinois and Missouri since *Coreopsis* (or *Bidens*) *bidentoides* is known only from the lower Delaware River! The status of the plant will be better indicated if we call it

BIDENS ARISTOSA (Michx.) Britton, var. **Fritcheyi**, n. var., formae typicae habitu foliis achaeniis etc. similē; aristis retrorse barbatis. — Like the typical form in habit, leaves, achenes, etc.: awns retrorsely barbed. — Wet prairies and swamps of Illinois and Missouri. ILLINOIS: received through *J. H. Lovell*; Athens, September, 1868, *E. Hall*; Champaign, September 29, 1898, *H. A. Gleason*. MISSOURI: St. Louis County, September 21, 1858, September 22 and October 3, 1859 (TYPE), *J. Q. A. Fritchey*; Webb City, September 25, 1908, *B. F. Bush*, no. 5175. Adventive in MAINE: about wool waste, North Berwick, Sept. 25, 1897, *J. C. Parlin*.

Another variation of *Bidens aristosa* which is anomalous is the plant with awnless achenes, which is found at various stations in Ohio, Tennessee, Missouri and Louisiana, and is adventive in Massachusetts (Soldier's Field, Brighton, *A. S. Pease*; Sharon, *S. F. Poole*) and Connecticut (waste land, South Windham, *C. B. Graves*, no. 259^a). This is

B. ARISTOSA, var. *MUTICA* (Gray) Gattinger, Fl. Tenn. 172 (1901). *Coreopsis aristosa*, var. *mutica* Gray, Syn. Fl. i. pt. 2, 295 (1878).

The combination is here ascribed to Gattinger with hesitation, for according to a strict interpretation of the rules covering the transfer of names, Gattinger did not make the combination, for he ascribed it to Gray, who had called the plant a *Coreopsis*, and gave no bibliographical citation or synonymic reference. Unfortunately botanical literature is too full of such vaguely, hesitantly or unintentionally published names and it is a serious question whether they should be given more nomeclatorial weight than their authors actually intended.¹ By inference only can the combination be ascribed to Gattinger who merely said: "**B. aristosa** (Michx.) Britton. Var. *mutica* A. Gray"; but by the above complete citation the name is here given a more definite status.

GRAY HERBARIUM.

¹ The writer is glad to note, since this paper went into type, a similar protest by Christensen against this unintelligent or unconscious publication of new combinations.— See *Am. Fern Journ.* iii, 1, 2 (1913).

PHLOX DIVARICATA IN VERMONT.—It may be interesting to the botanists of New England to know that on June 13, 1912, I found a station for the Blue Phlox, *Phlox divaricata* L., in Sheldon, Vermont. I was driving from Fairfield to Sheldon, intent upon business, when I noticed this blue flower some distance ahead. As I passed it rapidly I thought it *Geranium maculatum* L. but it occurred to me that I did not recall collecting the latter so far North. So I stopped the team and went back, finding to my delight that the plant was something new to me. On reaching Sheldon I secured a Manual and quickly determined it. The station was rather small—though there might be more in the neighborhood. It was in the damp shade of a maple sugar grove, the land somewhat rocky. I understand this is the first station for New England, although the plant has long been known in northern New York and adjacent Canada.—J. G. UNDERWOOD, Hartland, Vermont.

THE EIGHTEENTH ANNUAL WINTER MEETING OF THE VERMONT BOTANICAL CLUB was held at St. Johnsbury, January 31 and February 1, 1913, in conjunction with the Vermont Bird Club, with about the usual attendance. There were eleven botanical papers on the program. The principal ones were "Misapprehensions Regarding Some Northern Violets," by Dr. Ezra Brainerd, of Middlebury, who showed that some of the northern violets are called by wrong names at the present time; "The Franklin Bog," by Dr. George P. Burns, of the University of Vermont, a humorous warning against going too far in calling puzzling things hybrids; "The Botanical Manuals of the United States," by A. K. Peitersen of the University of Vermont, showing the territory covered by each, and "Notes on the Flora of Stratton, Berkshire, Franklin, Newport, Island Pond and Hartland," by Jay G. Underwood of Hartland, a resumé of his season's botanizing. The summer meeting of 1913 will be held in the West River valley, July 1 and 2, which may be extended by those so wishing, by a camping trip to Stratton Mountain.—MRS. NELLIE F. FLYNN, Secretary.

THE JOINT SUMMER MEETING OF THE VERMONT BOTANICAL AND BIRD CLUBS will be held in the West River Valley with headquarters at Townshend Inn, Townshend, Vt., July 1 and 2, 1913. Expeditions

have been planned by the members of the Committee, especially by Mr. L. A. Wheeler of Townshend who has made a special study of the Flora of this Valley, to the local points of interest. Hotel rates, trains and all details will be sent on application to members of this committee.

A supplementary meeting will follow. Members who decide to attend will go on July 3 to the town of Stratton in the wildest part of Southern Vermont. Headquarters will be in the abandoned mill village known as Grout's Mills. From this point explorations will be made of the forests, bogs, etc. of the surrounding country, especially of the wild meadows and bogs which are reported to lie South of Grout's on the Deerfield River, and will be flooded next year by the Somerset Dam. It should be thoroughly understood by all planning to attend this supplementary trip that it is strictly a camping trip. The villages are all abandoned. While there will be a roof over the heads of the party, everything else will need to be taken in. This includes, of course, bedding, food and clothing. All should be of the simplest kind. Everyone who plans to go should be prepared for a strictly camp trip, with all its inconveniences, its fun, and its joy of the woods. The committee expect that a forest ranger will be with the party and will assist in finding trails and in other ways. All the members of the Committee visited this county last summer and a partial list of plants found appears in the current bulletin of the Vermont Botanical Club. Persons interested are invited to correspond with members of the committee who will send detailed circulars.

The Vermont Botanical Club extends a most cordial invitation to all members of the New England Botanical Club to attend both its regular summer meeting and its supplementary meeting.

JAY G. UNDERWOOD, Hartland, Vt.	} Joint Committee on Summer Meeting of the Vermont Bo- tanical and Bird Clubs.
LESTON A. WHEELER, Townshend, Vt.	
HAROLD G. RUGG, Hanover, N. H.	

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